

CLAIMS:

What is claimed is:

1. A method for reclamation of precious metals plated onto circuit board runners and contacts which comprises the steps of:

(a) peeling said circuit board runners and contacts from the surface of a scrap circuit board, chopping said circuit board runners and contacts into approximately 10 centimeter long chunks, flattening and placing said chunks in a leaded glass beaker;

(b) filling said beaker with a weak acid solution which is saturated with copper sulfate at approximately 1 pound of copper sulfate per gallon of solution;

(c) introducing an electromagnetic field to said beaker at specific frequencies within the range of 7 kilohertz to 1 megahertz and power levels within the range of 0 to 400 watts rms and continuing the application of said field until said solution will not absorb more unwanted metals, turning said field off, pouring the loaded solution from said beaker through a screen to a precipitation tank, refilling said beaker with remaining screened metal and fresh solution, reapplying said field and repeating step (c) two to five times until there are no more said unwanted metals to shear from said precious metals and be absorbed by said solution; and

(d) skimming the floating metal flake from the surface of said solution, rinsing said metal flake in water and denatured alcohol, compressing said metal flake, and melting and pouring said compressed metal flake into bars or nuggets for further use or sale.

2. A method for reclamation of precious metals plated onto circuit board runners and contacts as defined in claim 1 whereby said weak acid solution is comprised of one part muratic acid and two parts water.

3. A method for reclamation of precious metals plated onto circuit board runners and contacts as defined in claim 1 whereby said field is comprised of a 13 kilohertz sine wave with the power ramping up from 0 to 400 watts and the desired output metal is gold and the unwanted metals to shear away are copper, nickel and zinc.

4. A method for reclamation of precious metals plated onto circuit board runners and contacts as defined in claim 1 whereby said field is comprised of a

sine wave within the range of 7 to 13 kilohertz with the power ramping up from 0 to 400 watts and the desired sheared metals are tin and iron.

5. A method for reclamation of precious metals plated onto circuit board runners and contacts as defined in claim 1 whereby said field is comprised of a sine waves with frequencies tuned to be between 50 kilohertz to 1 megahertz for shearing from more complex metals such as silver, platinum, palladium, rhodium and titanium with the power ramping up from 0 to 400 watts.

6. An installation for the reclamation of precious metals plated onto circuit board runners and contacts comprising: a circuit board runner and contact peeling device; a shearing device; a flattening device; an induction furnace which is modified by adding a heat exchanger, which circulates a non-conductive fluid with an electric motor and pump assembly through a large inductor adjacent to a nest for a removable conical shaped leaded glass beaker and then through a radiator with air blowing across said radiator; said induction furnace is further modified by adding wave shaping, frequency control and voltage control through a grid drive control circuit to standard induction furnace controls, said conical shaped leaded glass beaker, a rinse station, and a precipitation tank for the spent solution.

7. An installation for the reclamation of precious metals plated onto circuit board runners and contacts as defined in claim 6 further comprising an alternate modification to said induction furnace replacing the grid drive control circuit with a more stable cathode drive control circuit which generates a perfect output wave with no distortion or clipping and, although it requires more power, significantly reduces the shearing process time.